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ground has been broken here and there. Eventually even the peculiar achievements and more peculiar deficiencies of our scientific knowledge must be sent to the social psychologist for epistemological examination.

It is true, of course, that social psychology can lay no claim to eternal verity, nor can it attempt an appraisal of the human mind in the light of any infinite standard, religious or metaphysical. If there is such a thing as absolute truth it can hardly come within the ken of social psychology; for the minds which are examined by that science are minds which exist under particular and, therefore, partial social environments. And it is equally true that epistemology has in the past been chiefly engaged in just this task of transcendental appraisal. Perhaps it is still too early (after two thousand years of speculation) to say whether this sort of epistemology has been fruitful or not. It does seem fortunate, however, that, just at the time when the value of the old epistemology is being seriously impugned by the combined forces of new realism and pragmatism, a new epistemology should be arising about the significance of which there can be no doubts. For the new epistemology—social psychology—is already in process of becoming our chief instrument of control over social evolution.

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### THE PROOF-READER'S ILLUSION AND GENERAL INTELLIGENCE

IN a demonstration lecture given in the summer of 1917 to a group of some forty students in elementary psychology, interesting data were collected concerning the ease with which the proof-reader's illusion could be set up in a large group. Furthermore, since material was at hand for an intelligence rating of the reagents it was possible to correlate the two sets of observations.

The class as a whole had been divided into two sections on the basis of the pooled score from an hour's examining by means of the following tests: Hard and easy opposites; Hard and easy directions (Woodworth and Wells); Disarranged sentences; Analogy test; and Information test (marking true or false a series of 25 propositions). The sectionizing of the class on the basis of these group tests proved very successful so far as general capacity in class work was concerned. There was, of course, little difference between those at the end of section one and those at the head of section two. Moreover,

two or three students fell into the second or poorer section by reason of their slowness in reaction, although the quality of their class work proved to be equal to that of the average of the other section.

In conducting the illusion experiment, a revolving blackboard was set up on a high platform sufficiently elevated to be easily seen from all parts of the assembly room. The class was seated in center and front seats. Upon the blackboard the following sentence was printed in large plain type. "An examination four preachers' certificates will take place at the close of June." The sentence was written in three lines. The content of the sentence was determined by the fact that the majority of the class were preparing to take examinations for teachers' certificates at the end of July. The sentence as written gave opportunity for two, possibly three, word-substitutions, namely "for" for "four," "teachers" for "preachers," "July" for "June"; for four letter-substitutions; and for the supplying of four omitted letters. Altogether, ten or eleven misreadings were possible.

The blackboard was slowly revolved by hand at an even speed. Four exposures of the sentence were given. The reagents after each exposure wrote what they had read. Immediately following the fourth reading, papers were signed and collected. Each reagent recorded also the number of the row in which he sat and his position with reference to the center. This was done in order that the effect of distance from the platform on speed of reading might be estimated. Three papers collected from row seven were thrown out because the reagents appeared to have difficulty in reading at the distance. Forty-three papers were available for analysis.

A preliminary survey of the material showed the frequent presence of the anticipated illusions, except that of "July" for "June." Only one reagent made this misreading. On careful reading of the reports, it was evident that they fell obviously into four groups: (*A*) those in which the sentence was read with anticipated corrections on the second exposure; (*B*) those in which it was read on the third; (*C*) those in which it was read on the fourth exposure; and (*D*) those in which it was left incomplete or read as a meaningless jumble of words. In the fourth group are also included two papers in which the sentence was read in bits, progressively from the first to the fourth exposure. These two reagents probably belong in a group by themselves; they are very conscientious, canny, and critical.

That the seating did not effect results materially is shown by the following observations. The eight members of group *A* had a representative in each of the seven rows; the twelve members of group *D* were distributed as follows: Row I. (2), Row II. (1), Row III. (4), Row IV. (1), Row VI. (4).

Table I. gives the number of reagents belonging to each group and the distribution according to sections. Six reagents took part in this experiment who were not present for the "intelligence" examination; they are entered as Unclassified.

TABLE I

NUMBER READING SENTENCE ON SECOND EXPOSURE (*A*), THIRD EXPOSURE (*B*), FOURTH EXPOSURE (*C*), AND FAILING TO READ SENTENCE (*D*).

	Group				Total
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	
Section 1. ....	6	6	6	2	20
Section 2. ....	1	2	5	9	17
Unclassified. ....	1	2	2	1	6
Total. ....	8	10	13	12	43

It is obvious at a glance that the members of the first or more intelligent section read more rapidly (bigger attention span) and utilized meaning (shown by presence of illusions) to a greater extent than did the members of the second section.

A further comparison is instructive, namely, the number and kind of illusions present for each group. This could be determined both for the first complete reading of the sentence and the final reading of it. How will the reagents who succeed in deciphering the complete sentence on the second exposure, with the suggested corrections, handle the situation on the next two readings? The actual illusions present for each group, given in terms of the percentage of possible illusions and classified under the three heads, Supply of omitted letters, Letter-substitution, and Word-substitution, point to some interesting conclusions. See Table II.

For Group *C*, since the first complete reading does not occur until the fourth exposure, but one set of figures can be given. Nor is it possible to include in this summary the records of the twelve reagents of the fourth group as their sentences were left incomplete or wild guesses were made out of all relation to the words actually presented. The following examples may be given of such wild substitution: "An examination of four special certificates will take place the close of June;" "An examination reaches certificates and will take place at the . . . . .," "An examination four teacher's certificates will be held at the University." An occasional number of these wild guesses are also found in the reports of group *B* and *C*; two papers from each set can not be used in the tabulation of illusions because of such unclassifiable errors. In group *A* no such bare guessing or wild substitution occurs.

TABLE II  
PER CENT. OF EACH KIND OF ILLUSION FOR EACH GROUP.  
*First Complete Reading*

	Group		
	<i>A</i>	<i>B</i>	<i>C</i>
Supply of omitted letters.....	100	100	99
Letter-substitution.....	94	94	86
Word-substitution.....	71	46	46

*Final Reading*

Supply of omitted letters.....	94	100	
Letter-substitution.....	78	94	
Word-substitution.....	29	38	

From a study of Table II. it is obvious that the members of group *A* are more susceptible to the illusions so far as their immediate reaction is concerned than are those in groups *B* and *C*. This is especially true with respect to the most complicated illusion, namely, word-substitution. Group *A* shows, however, a quick recovery from the illusions and a strong tendency to correction of errors on subsequent readings. Illusions involving the substitution of words are less easily set up than those involving merely letter-substitution or supply of missing letters. No reader, even on the fourth exposure, perceived every word exactly as printed. Every one, for example, inserted the "i" in "examination."

### SUMMARY

Susceptibility to the proof-reader's illusion correlates with general intelligence to a considerable degree. Reagents, little intent upon meaning or with a narrow span of attention, give evidence of this in both the intelligence and the illusion test.

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### REVIEWS AND ABSTRACTS OF LITERATURE

*Physiological Chemistry.* ALBERT P. MATHEWS. Second Edition. New York: William Wood and Company. 1916. Pp. 1040.

Normally the appearance of the second edition of a successful text in physiological chemistry does not offer matter for comment in psychological and philosophical circles. However, in the second edition of so widely used a text as Mathews's *Physiological Chemistry*, the case is different because of Professor Mathews's specula-